+15V

VCC

C501
+ 100u / 25V

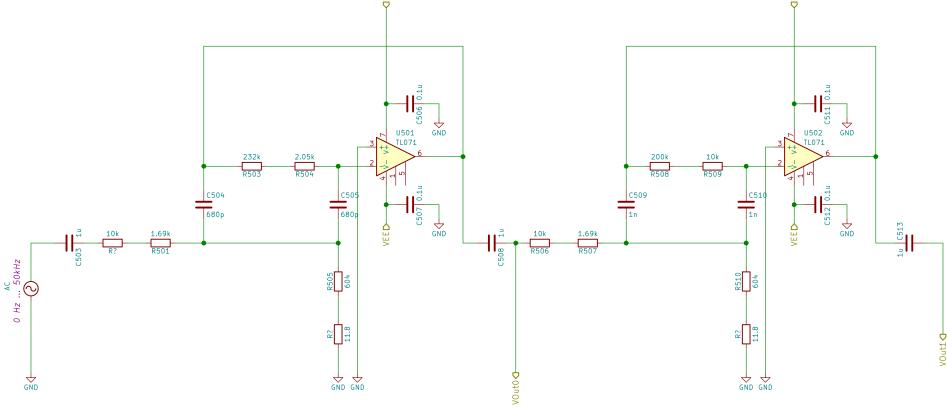GND

C502
+ 100u / 25V

VEE

−15V

Two times cascaded:
20 kHz band pass, using a
modified Deliyannis filter
(Texas Instruments, SLOA093)

All resistors: E96 series
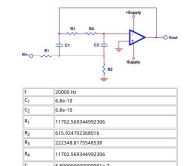All capacitors: E24 series

VCC

C506 0.1u

GND

U501
TL071

VCC

C511 0.1u

GND

U502
TL071

232k
R503

2.05k
R504

200k
R508

10k
R509

C504
680p

C505
680p

VEE

C507 0.1u

GND

C509
1n

C510
1n

VEE

C512 0.1u

GND

AC
0 Hz ... 50kHz

C503 1u

10k
R?

1.69k
R501

R505
604

R7
11.8

C508 1u

10k
R506

1.69k
R507

R510
604

R7
11.8

C513
1u

VOut1

GND

GND GND

VOut0

GND GND

VOut0

Spectrum analyzer output, 0 Hz ... 50 kHz.

Marker is at 15 kHz.

VOut1

Spectrum analyzer output, 0 Hz ... 50 kHz.

Marker is at −6dB point.

Source data for
a single stage filter.

+Supply

R3 R4

C1   C2

Vin   R1

Vout

-Supply

R2

f	20000 Hz
C_1	6.8e-10
C_2	6.8e-10
R_1	11702.5693449923306
R_2	615.924702368016
R_3	222348.8175548538
R_4	11702.5693449923306
C_{in}	6.800000000000001e-7
C_{out}	6.800000000000001e-7

... extra notes here